ENVIRONMENTAL
Fact Sheet

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

29 Hazen Drive, Concord, New Hampshire 03301 • (603) 271-3503 • www.des.nh.gov

WD-DWGB-4-8 2007

Boil Water Advisories

The possible presence of microbiological pathogens in drinking water supplies is a significant concern in the protection of public health. This risk of contaminants can be minimized through such measures as observance of required setbacks of water sources from septic systems, proper disinfection at the source where needed, and maintenance of an adequate program to prevent back-siphonage of contamination into the supply mains. Despite these measures, however, there are occasional bacterial incidents which represent a significant threat to the safety of a public water supply. As a safeguard until corrections can be made, the Department of Environmental Services and/or the local health officer may issue a boil water advisory to all system users. The notice generally advises that all water which is used for consumption should be brought to and kept at a vigorous boil for not less than two minutes. Such advisories may be issued for the following reasons.

Detection of fecal coliforms (including E. Coli). Every public water system conducts periodic monitoring for coliforms and, where coliforms are detected, fecal coliforms. In municipal systems, monthly monitoring is typically required at several sites, with the number of sites determined by the system's service population. Presence of coliforms indicates a possible deficiency which allows inadequately treated water into the system and which can be corrected as a high-priority maintenance item. Presence of fecal coliforms, on the other hand, indicates a more urgent problem of fecal origin that requires immediate attention. Any detection of fecal coliforms triggers DES notification to the water system and the immediate issuance of a boil water advisory.

Lapse in distribution system integrity. Water distribution systems normally operate at a minimum positive pressure to prevent infiltration of untreated water into the system. Backflow of contaminated water into the distribution system is a concern whenever water pressure drops, or could drop, below 20 pounds per square inch (psi) as measured at ground level. Operation of the water system at pressures below this level increases the possibility of back-siphonage of contaminated water into the piping system. Such a pressure drop can occur because of broken mains, loss of stored water (especially in small systems), or long-term loss of power or source capacity. In the case of water main breaks, water supply owners ordinarily can isolate main breaks to complete repairs without pressure loss to other areas within the distribution network. Breaks occasionally occur which cannot be isolated and require interruption of service over a much wider area. The widespread loss of service may require a boil water advisory.

Detection or suspicion of waterborne pathogens. Disinfection through use of chlorine or other oxidants has been shown to be effective for inactivation of most bacteria, viruses, and other micro-organisms which represent a health risk. However, there are other pathogens, most notably the protozoans, which are extremely resistant to chemical attack and may be inactivated only

after high dosages or unusually long contact times. Because of this resistance, protozoans may be present even though routine coliform monitoring indicates an otherwise safe supply. Pathogens of note are Giardia lamblia, which has been the target organism in the mandated filtration of surface water supplies, and Cryptosporidium parvum, an organism which gained widespread infamy in a 1995 Milwaukee outbreak which was responsible for more than 100 deaths. Infections by either of these organisms are reportable to the NH Division of Public Health Services and are of importance because of their more profound effect among immunocompromised populations. Detection in the water supply may be very difficult given the long incubation periods, diagnostic procedures, and extended times for water sampling and analysis. The determination that these protozoans are present in the water supply frequently depends on collection of circumstantial evidence. A safe approach under these circumstances is to issue a boil water advisory when there is reasonable suspicion of contamination of the water supply.

Boil water advisories can be rescinded by DES or the health officer when system corrections have been completed and water quality indicators are acceptable. In the case of fecal coliform presence, the boil water advisory remains in effect until a minimum of two consecutive sets of samples show the absence of coliform and any outstanding system defects have been corrected.

Experience at the Department of Environmental Services has shown wide variation in circumstances where boil water advisories are necessary. Notification of the public leads to numerous inquiries regarding uses which require prior boiling, boiling procedure, and corrective action taken by the water supply owner. Restaurants, health clinics, and hospitals are especially affected. Close communication among staff of the Department of Environmental Services, the Division of Health and Human Services and local officials has been essential.

For Additional Information

Please contact the Drinking Water and Groundwater Bureau at (603) 271-2513 or dwgbinfo@des.state.nh.us or visit our website at www.des.nh.gov/dwgb. All of the bureau's fact sheets are on-line at www.des.nh.gov/dwg.htm.

Note: This fact sheet is accurate as of January 2007. Statutory or regulatory changes, or the availability of additional information after this date may render this information inaccurate or incomplete.